

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application. The following listing provides the amended claims with the amendments marked with deleted material crossed out and new material underlined to show the changes made.

1. (Previously Presented) A method of specifying speed effects for playing a video clip, the method comprising:

a) receiving a set of speed effects for the video clip through a set of modifications of a user selectable graph that represents a playback-time in relation to a content-time of the video clip; and

b) displaying in real-time a presentation of the video clip that accounts for the set of speed effects defined for the video clip.

2. (Previously Presented) The method of claim 1, wherein the set of speed effects comprises only one speed effect.

3. (Previously Presented) The method of claim 1, wherein the set of speed effects comprises a plurality of speed effects that specify a plurality of playback speeds for a plurality of intervals.

4. (Previously Presented) The method of claim 1 further comprising:
receiving user input regarding speed effects;
defining the set of speed effects, wherein defining the speed effects comprises converting the user input into a set of speed effect definitions.

5. (Previously Presented) The method of claim 4, wherein receiving user input comprises:

a) providing a graph that represents a playback-time of the video clip in relation to a content-time of the video clip;

- b) allowing the user to modify the speed effects by modifying the graph.

6. (Original) The method of claim 5, wherein allowing the user to modify the graph comprises allowing the user to select a portion of the graph that appears at a first location within a window containing the graph and to move the selected portion to a second location within the window.

7. (Original) The method of claim 1, wherein said displaying comprises displaying the video presentation without rendering the presentation to a data storage.

8. (Original) The method of claim 7 further comprising:
after specifying the speed effects for the video clip, rendering the video clip to a data storage.

9. (Previously Presented) The method of claim 1, wherein the video clip comprises a plurality of frames, wherein displaying comprises:

- a) selecting a first frame for display at a first playback time;
- b) displaying the first frame for display at the first playback time;
- c) selecting a second frame for display at a second playback time; and
- d) displaying the second frame for display at the second playback time.

10. (Previously Presented) The method of claim 1, wherein the video clip comprises a plurality of frames, wherein displaying comprises:

- a) selecting a first frame for display for a first playback duration based on the defined set of speed effects;
- b) displaying the first frame during the first playback duration;
- c) selecting a second frame for a second playback duration based on the defined set of speed effects; and
- d) displaying the second frame during the second playback duration.

11. (Previously Presented) The method of claim 10 further comprising:

- a) before displaying the first frame, decompressing the first frame; and
- b) before displaying the second frame, decompressing the second frame.

12. (Previously Presented) The method of claim 1, wherein the video clip comprises a composite of a plurality of video clips.

13. (Previously Presented) The method of claim 12, wherein the video clip comprises at least one audio track.

Claims 14-15 (Canceled)

16. (Currently Amended) A computer readable medium storing a computer program for specifying speed effects for playing a video clip, said computer program for execution by at least one processor, the computer program comprising sets of instructions for:

- _____ a) defining a set of speed effects for the video clip;
- _____ b) displaying in real-time a presentation of the video clip that accounts for the set of speed effects defined for the video clip; and
- _____ c) providing a graph that represents a playback-time of the video clip in relation to a content-time of the video clip;
- _____ d) allowing the user to modify the graph by receiving user inputs of modifications to the graph; and
- _____ e) converting the user inputs of modifications of the graph into a set of speed effect.

~~The computer readable medium of claim 15, wherein the set of instructions for receiving user input comprises sets of instructions for:~~

- ~~_____ allowing the user to modify the speed effects by modifying the graph.~~

17. (Original) The computer readable medium of claim 16, wherein the set of instructions for allowing the user to modify the graph comprises a set of instructions for allowing the user to select a portion of the graph that appears at a first location within a window containing the graph and to move the selected portion to a second location within the window.

18. (Currently Amended) The computer readable medium of claim 16 +4, wherein the set of instructions for displaying comprises a set of instructions for displaying the video presentation without rendering the presentation to a data storage.

19. (Currently Amended) The computer readable medium of claim 16 +4, wherein the video clip comprises a plurality of frames, wherein the set of instructions for displaying comprises sets of instructions for:

- a) selecting a first frame for display at a first playback time;
- b) displaying the first frame for display at the first playback time;
- c) selecting a second frame for display at a second playback time; and
- d) displaying the second frame for display at the second playback time.

20. (Previously Presented) A graphical user interface ("GUI") method for specifying speed effects for a video presentation, the method comprising:

- a) as part of the GUI, providing a GUI graph of a playback-time of the video presentation relative to a content-time of the video presentation; and
- b) allowing a user to specify a speed effect for the video presentation by selecting and modifying a portion of the graph through a GUI drag operation.

21. (Previously Presented) The method of claim 20 further comprising providing a set of controls for selecting portions of the graph and performing drag operations.

22. (Previously Presented) The method of claim 20, wherein the graph is defined along

at least:

- a) a playback-time axis that represents time during a playback; and
- b) a content time axis that represents time within the video presentation.

23. (Previously Presented) The method of claim 22, wherein the selected portion of the graph comprises a keyframe.

24. (Original) The method of claim 23, wherein at any time, the keyframe has a value along the playback-time axis and a value along the content-time axis, wherein when the keyframe is selected, the keyframe has a first content-time value, the method further comprising:

when the keyframe is selected, displaying a frame that appears in the video presentation at the first content-time value.

25. (Previously Presented) The method of claim 24 further comprising:

when the content-time value of the keyframe changes during a drag operation, displaying the frame, in the video presentation, that corresponds to the content-time value of the keyframe.

26. (Original) The method of claim 25 further comprising:

displaying a graphical representation of the video presentation when the keyframe is selected,

wherein performing the drag operation comprises moving the graphical representation along the playback-time axis when the drag operation is along the playback-time axis.

27. (Original) The method of claim 26, wherein performing the drag operation further comprises moving the keyframe along the content-time axis when the drag operation is along the playback-time axis.

28. (Previously Presented) The method of claim 24, wherein performing a drag

operation comprises moving the keyframe along the playback-time axis when:

- a) the drag operation is along the playback-time axis; and
- b) the user is pressing a particular keyboard key.

29. (Previously Presented) The method of claim 24, wherein performing a drag operation comprises moving the keyframe along the content-time axis when:

- a) the drag operation is along the playback-time axis; and
- b) the user is not pressing a particular key on the keyboard.

30. (Original) The method of claim 25, wherein performing the drag operation comprises moving the keyframe along the playback-time axis when the drag operation is along the playback-time axis.

31. (Original) The method of claim 25, wherein performing the drag operation further comprises moving the keyframe along the content-time axis when the drag operation is along the content-time axis.

32. (Previously Presented) The method of claim 25 further comprising:
displaying a graphical representation of the video presentation when the keyframe is selected,

wherein performing the drag operation comprises

- a) moving the keyframe along the content-time axis when the drag operation is along the content-time axis; and
- b) moving the graphical representation along the playback-time axis when the drag operation is along the playback-time axis.

33. (Currently Amended) The computer readable medium of claim 16 44, wherein said computer program further comprises a set of instructions for generating a set of blended frames from at least two frames of said video clip.

34. (Previously Presented) The computer readable medium of claim 33, wherein said set of instructions for generating said set of blended frames comprises instructions for:

- a) multiplying a first frame by a first blending parameter;
- b) multiplying a second from by a second blending parameter; and
- c) adding the result of said multiplying together to produce a blended frame.

35. (Previously Presented) The computer readable medium of claim 34, wherein said computer program further comprises a set of instructions for generating sequential frames of said set of blended frames by changing a magnitude of said first and second blending parameters.

36. (Previously Presented) The method of claim 20, wherein said GUI graph represents said playback-time relative to said content-time as a curve on said graph.

37. (Previously Presented) The method of claim 36, wherein said GUI graph simultaneously shows said relationship at a plurality of points in a playback time.

38. (Previously Presented) The method of claim 28, wherein moving the keyframe along the playback-time axis comprises moving the keyframe without changing the first content-time value, while displaying the frame, in the video presentation, that corresponds to the content-time value of the keyframe.

39. (Previously Presented) The method of claim 38, wherein moving the keyframe further comprises setting a new playback-time value for said keyframe.

40. (Previously Presented) The method of claim 39, wherein moving the keyframe along the playback-time axis comprises moving the keyframe without changing the first content-time value, while displaying the frame, in the video presentation, that corresponds to the content-time value of the keyframe.

41. (Previously Presented) A graphical user interface ("GUI") comprising:

- a) a display area for displaying a video presentation;

b) a selectable GUI graph representing a playback-time of the video presentation relative to a content-time of the video presentation, wherein a speed effect is specified by selecting and modifying the graph.

42. (Previously Presented) The GUI of claim 41 further comprising a set of controls for allowing a user to modify the graph by selecting a portion of the graph and performing a GUI drag operation.

43. (Previously Presented) The GUI of claim 41, wherein the graph is defined along at least:

- a) a playback-time axis that represents time during a playback; and
- b) a content-time axis that represents time within the video presentation.

44. (Previously Presented) The GUI of claim 43, wherein a selected portion of the graph comprises a keyframe.

45. (Previously Presented) The GUI of claim 44, wherein the keyframe has a pair of values at each value along the playback-time axis, a playback-time value along the playback axis and a content-time value along the content-time axis, the GUI further comprising a display of a frame that appears in the video presentation at a first content-time value corresponding to a selected playback-time value.

46. (Previously Presented) The GUI of claim 45 further comprising a display of the frame in the video presentation that corresponds to the content-time value of the keyframe wherein the content of said display changes when the content-time value of the keyframe changes during a drag operation.

47. (Previously Presented) The GUI of claim 41, wherein the graph comprises a curve.

48. (Previously Presented) The GUI of claim 47, wherein a slope of a portion of the curve determines a playback speed of a corresponding portion of a content clip.

49. (Previously Presented) The GUI of claim 48, wherein a negative slope of a portion of the curve determines that the corresponding portion of the content clip is playing backward.

50. (Previously Presented) The GUI of claim 47 further comprising a set of controls for setting a curvature of said curve.

51. (Previously Presented) A computer readable medium storing a computer program for specifying speed effects for playing a video clip, said computer program for execution by at least one processor, the computer program comprising sets of instructions for:

- a) providing a graphical user interface (“GUI”) graph of a playback-time of the video presentation relative to a content-time of the video presentation; and
- b) allowing a user to specify a speed effect for the video presentation by selecting and modifying a portion of the graph through performing a GUI drag operation.

52. (Previously Presented) The computer readable medium of claim 51, wherein the graph is defined along at least a playback-time axis that represents time during a playback and a content time axis that represents time within the video presentation.

53. (Previously Presented) The computer readable medium of claim 52, wherein the selected portion of the graph comprises a keyframe.

54. (Previously Presented) The computer readable medium of claim 53, wherein the keyframe has a value along the playback-time axis and a value along the content-time axis, wherein when the keyframe is selected, the keyframe has a first content-time value, the computer program further comprising a set of instructions for:

displaying a frame that appears in the video presentation at the first content-time value when the keyframe is selected.

55. (Previously Presented) The computer readable medium of claim 54, wherein the computer program further comprises a set of instructions for:

displaying the frame, in the video presentation, that corresponds to the content-time value of the keyframe when the content-time value of the keyframe changes during a drag operation.

56. (Previously Presented) The computer readable medium of claim 55, wherein the computer program further comprises a set of instructions for:

displaying a graphical representation of the video presentation when the keyframe is selected,

wherein a set of instructions for performing the drag operation comprises instructions for moving the graphical representation along the playback-time axis when the drag operation is along the playback-time axis.

57. (Previously Presented) The computer readable medium of claim 56, wherein the set of instructions for performing the drag operation further comprises instructions for moving the keyframe along the content-time axis when the drag operation is along the playback-time axis.

58. (Previously Presented) The computer readable medium of claim 55, wherein a set of instructions for performing the drag operation further comprises instructions for moving the keyframe along the playback-time axis when the drag operation is along the playback-time axis.

59. (Previously Presented) The computer readable medium of claim 55, wherein a set of instructions for performing the drag operation comprise instructions for moving the keyframe along the content-time axis when the drag operation is along the content-time axis.

60. (Previously Presented) The computer readable medium of claim 55 further comprising instructions for:

displaying a graphical representation of the video presentation when the keyframe is selected, wherein a set of instructions for performing the drag operation comprises

instructions for:

a) moving the keyframe along the content-time axis when the drag operation is along the content-time axis; and

b) moving the graphical representation along the playback-time axis when the drag operation is along the playback-time axis.

61. (Previously Presented) The computer readable medium of claim 54, wherein a set of instructions for performing a drag operation comprises instructions moving the keyframe along the playback-time axis when:

a) the drag operation is along the playback-time axis; and

b) the user is pressing a particular keyboard key.

62. (Previously Presented) The computer readable medium of claim 54, wherein a set of instructions for performing a drag operation comprises instructions for moving the keyframe along the content-time axis when:

a) the drag operation is along the playback-time axis; and

b) the user is not pressing the particular key on the keyboard.

63. (Previously Presented) The computer readable medium of claim 51, wherein the set of instructions for providing said GUI graph comprises instructions for representing said playback-time relative to said content-time as a curve on said graph.

64. (Previously Presented) The computer readable medium of claim 63, wherein the set of instructions for providing said GUI graph comprises instructions for simultaneously showing said relationship at a plurality of points in a playback time.

65. (Previously Presented) A video editing system comprising:

a) a data storage medium for providing a video clip;

b) a video editing application for providing a set of speed effect settings;

- c) an effects manager for:
 - i) receiving said set of speed effect settings from said video editing application;
 - ii) receiving said video clip from said data storage;
 - iii) providing said video clip as individual frames to the video editing application at a rate based on said speed effect settings.

66. (Previously Presented) The video editing application of claim 65, wherein the effects manager is for providing two sets of frames corresponding to said video clip, wherein a first of said two sets of frames is offset in time from a second set of frames.

67. (Previously Presented) The video editing system of claim 65 further comprising a frame buffer, wherein said video editing application is for blending two frames of said two sets of frames into a blended frame and sending said blended frame to said frame buffer.